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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,796	11/26/2003	Vasant Ramchandra Choudhary	4062-100	4138

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

NWAONICHA, CHUKWUMA O

ART UNIT PAPER NUMBER

1621

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 10/721,796	Applicant(s) CHOUDHARY ET AL.	
	Examiner Chukwuma O. Nwaonicha	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

10-0

DETAILED ACTION

Current Status

Claims 1-15 are pending in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite because of the phrase "other organic products". Correction is required.

Claim 4 is indefinite because of the phrase "other linear or non-linear". It is unclear as to what olefins are referred to by this language. Correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothenberg et al., {Pyridines as Bifunctional Co-Catalyst in the CrO₃-Catalyzed Oxygenation of Olefins t-Butyl Hydroperoxide, Journal of Molecular Catalysis A: Chemical 136 (1998) 253-262} in view of Kaplan, {US 3,523,956}.

Applicants claim a biphasic process for the liquid phase epoxidation of an olefinic compound comprising at least one olefinic group to an epoxide by an organic hydroperoxide, using a catalyst comprising chromate or dichromate anions; wherein all the other variables are as defined in the claim.

Determination of the scope and content of the prior art (M.P.E.P. §2141.01)

Rothenberg et al. teach an epoxidation process of olefins by the reaction of t-butyl hydroperoxide, an olefinic compound and Cr(VI) catalyst. Additionally, Rothenberg et al. teach the use of pyridine as a co-catalyst to reduce oxidation process in the reaction medium. See reaction step on pages 257-258.

Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)

Rothenberg et al. epoxidation process differs from the instantly claimed epoxidation process in that Rothenberg et al. do not teach all the limitations of the reaction process, for example the process pressure and reaction time.

The secondary reference of Kaplan teaches a liquid phase epoxidation process wherein the reaction is conducted in the presence of an effective amount of a potassium salt of Cr compound at a temperature between -20°C – 200°C (column 1, lines 21-72) at a pressure of 15-1000 p.s.i., (column 4, lines 33-44) and 75 minutes time period.

Additionally, applicants claim a process wherein the Cr catalyst is re-used and the solvent is recycled while prior art references are silent about these laboratory techniques.

Finding of prima facie obviousness--rational and motivation (M.P.E.P. §2142-2143)

The instant claimed liquid phase epoxidation of an olefinic compound would therefore have been suggested to one of ordinary skill because one wishing to obtain epoxidized olefinic compound is taught to select the processes of Rothenberg et al. and Kaplan.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by selection a potassium salt of Cr compounds (K_2CrO_4 or K_2CrO_7) to arrive at the instantly claimed epoxidation process. Said person would have been motivated to practice the teaching of the references cited because they demonstrate that olefinic compound can be epoxidized in the presence of Cr compounds. Furthermore, the Examiner notes that the re-use of the catalyst or

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recycling of used solvent is a common laboratory technique for process efficiency and for economic reasons. Thus, the use of K_2CrO_4 and K_2CrO_7 is not a patentable distinction because Rothenberg et al. and Kaplan teach the elements of the claimed invention with sufficient guidance, particularity, and with a reasonable expectation of success, that the invention would be *prima facie* obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.

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Patent Examiner

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ACTING FOR

Johann R. Richter, Ph.D., Esq.
Supervisory Patent Examiner,
Technology Center 1600